

Notice of Allowability

Application No.

10/576,595

Examiner

ABOLFAZL TABATABAI

Applicant(s)

MIYAZAKI ET AL.

Art Unit

2624

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed on April 20, 2006.
2. ☒ The allowed claim(s) is/are 1, 3-7, 9-15 and 17-19 (now renumbered 1-16).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 04/20/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 06/14/2010
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other ____.

/ABOLFAZL TABATABAI/
Primary Examiner, Art Unit 2624
June 21, 2010

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this Examiner's amendment was given in a telephone interview with Applicant's Attorney (Mr. Paul Teng with Reg. No 40,837), on June 14, 2010.
3. **The application has been amended as follows:**

Replace the abstract with:

Abstract

An image for treatment region considered as already completed treatment in the course of medical treatment is acquired. Time up to completion of the whole scope of intended treatment regions is estimated on the basis of the already completed treatment region.

Replace Claim 1, with:

Claim 1: An image processor for medical treatment support for monitoring the treatment process by obtaining a tomographic image of an object to be examined comprising:

a treatment target region setting means for selecting a monitoring image from the tomographic image, and for setting a treatment region as an objective on the image thereof;

a treatment-completed region setting means for setting the region where the treatment is already considered completed on the monitoring image; and

a total treatment time estimating means for estimating the time up to the completion of the treatment target region being set by the treatment target region setting means based on the treatment-completed region,

wherein the total treatment time estimating means obtains each of the distance from a reference point which is the starting point of the treatment to the outline of the treatment-completed region with regard to the treatment-completed region on a plurality of monitoring images, and estimates the total treatment time based on the change of distance.

Claim 2. (Canceled).

In claim 3, line 1, after claim delete "2" and insert --- 1---.

In claim 4, line 1, after claim delete "2" and insert --- 1---.

In claim 5, line 1, after claim delete "2" and insert --- 1---.

Replace Claim 7, with:

Claim 7: The image processor for medical treatment support for obtaining a tomographic image of an object to be examined and monitoring the treatment process comprising:

a treatment target setting means for selecting the monitoring image from the tomographic image, and setting the treatment region on it as an objective;

a treatment-completed region setting means for setting the treatment-completed region which is a region considered that the treatment is already completed on the monitoring image; and

a display means for estimating the treatment region after passing a predetermined time based on the treatment-completed region, and displaying this estimated treatment region with at least one hue information.

wherein the display means displays as allocating different hue information to each of the treatment target region, treatment-completed region and the estimated treatment region.

Claim 8. (Canceled).

Replace Claim 15, with:

Claim 15: The image processor for medical treatment support for obtaining a tomographic image of an object to be examined, and monitoring the treatment process comprising:

an image memory for storing data for creating the tomographic image;

a measurement calculating means for obtaining the measurement value from the data for creating the tomographic image;

a measurement/temperature converting means for converting the measurement value into temperature;

a color table for temperature-color display by allocating hue information with regard to the temperature being converted;

a look-up table for allocating the gray scale to the data for creating the tomographic image being stored in the image memory;

a monitoring mode switch for indicating the synthesis of the temperature-color display and the data for creating the tomographic image being allocated with gray scale; and

a display means for displaying the synthesized image of temperature-color display and the data for creating the tomographic image as an image,

wherein the measurement/temperature converting means converts CT value into temperature, by setting CT value as measurement value that the tissue in the vicinity of 25 degrees of which the CT value is 0 has the CT value of -20 ~ -50 at below 0 degree of temperature.

Claim 16. (Canceled).

Drawings

4. The drawings were received on April 20, 2006. The Examiner accepts these drawings.

Reasons for Allowance

5. The following is an Examiner's statement of reasons for allowance. The prior art independently or in combination fails to teach or suggest, image processor for medical

treatment support comprises (a) a total treatment time estimating means for estimating the time up to the completion of the treatment target region being set by the treatment target region setting means based on the treatment-completed region wherein the total treatment time estimating means obtains each of the distance from a reference point which is the starting point of the treatment to the outline of the treatment- completed region with regard to the treatment-completed region on a plurality of monitoring images, and estimates the total treatment time based on the change of distance in combination into other elements and features of claim 1; (b) estimating the treatment region after passing a predetermined time based on the treatment-completed region, and displaying this estimated treatment region with at least one hue information wherein the display means displays as allocating different hue information to each of the treatment target region, treatment-completed region and the estimated treatment region in combination into other elements and features of claim 7; (c) a display means for displaying the synthesized image of temperature-color display and the data for creating the tomographic image as an image, wherein the measurement/temperature converting means converts CT value into temperature, by setting CT value as measurement value that the tissue in the vicinity of 25 degrees of which the CT value is 0 has the CT value of -20 ~ -50 at below 0 degree of temperature in combination into other elements and features of claim 15.

6. **Claims 1, 3-7, 9-15 and 17-19 (now renumbered 1-16) are allowed.**
7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Citation of Relevant Prior Art

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ghilmansarai (U. S. 6,760,402 B2) discloses verification of MLC leaf position and of radiation and light field congruence.

Aida et al (U. S. 5,590,653) disclose ultrasonic wave medical treatment apparatus suitable for use under guidance of magnetic resonance imaging.

Suzuki et al (U. S. 5,553,618) disclose method and apparatus for ultrasound medical treatment.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Samir Ahmed, can be reached at (571) 272-7413. The fax phone number for organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

Art Unit: 2624

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Abolfazl Tabatabai/

Primary Examiner, Art Unit 2624

June 21, 2010

